



U.S. Fish & Wildlife Service

Alpena FRO Accomplishment Report

Aquatic Species Conservation and Management



Photo – Jeff Allen, USGS

2005 Study Results at the Lake Sturgeon Spawning Reef on the Detroit River

Following a year of delays, post construction evaluation of the artificial lake sturgeon spawning reef on the Detroit River has been completed. Researchers from Alpena FRO and USGS Great Lakes Science Center (USGS GLSC) initiated pre-construction assessment at the proposed site in the spring of 2003. The goal at that time was to document fish use at the proposed site prior to placement of the reef material. Construction of the reef was delayed first by funding and contracting issues in the fall of 2003 and then by weather conditions in the spring of 2004. Reef construction was completed by July of 2004 but unfortunately was too late to assess lake sturgeon spawning during that year. Sampling in 2005 began on April 5 and ended on June 6.

Historical records indicate that lake sturgeon were abundant and spawned at many locations in the Detroit River. Changes in hydrology and loss of habitat following the construction of the navigation channels in the early 1900's are partially to blame for the low number of lake sturgeon remaining (historical views of construction can be found at the following link: [http://memory.loc.gov/cgi-bin/query/r?ammem/detr:@field\(SUBJ\)+@band\(Michigan--Livingstone+Channel+\)](http://memory.loc.gov/cgi-bin/query/r?ammem/detr:@field(SUBJ)+@band(Michigan--Livingstone+Channel+))). Research conducted by Alpena FRO and USGS had recently determined virtually no suitable lake sturgeon spawning habitat remained in the Detroit and what was remaining was located in a degraded portion of the river. One of the major goals of this demonstration effort was to provide suitable spawning habitat for lake sturgeon and to document lake sturgeon use of the reef. The reef that was constructed is located at the northeast end of Belle Isle and is actually a series of three reefs (Limestone, Cobble, and Coal Cinders).

Assessment methods used in 2003 and 2005 included large mesh gillnets and baited setlines for lake sturgeon, egg mats for the collection of fish eggs, and experimental gillnets and baited minnow traps for other fish species. Results from 2003 revealed that the area was not being used by lake sturgeon and only a few potential egg predators (crayfish, stonecat, rock bass, and round goby) were captured at the site. Eggs that were captured on the egg mats were taken back to the USGS lab in Ann Arbor which when reared to fry size revealed that they were walleye.

Although researchers for many years had suspected that walleye were using the Detroit River for spawning it, was not documented until that time.

In 2005 no lake sturgeon or lake sturgeon eggs were captured at or near the vicinity of the reef. Our results may be partially explained by the size of the reef in relationship to the Detroit River and the fact that very few lake sturgeon are found in the Detroit River. Our results did not come as a total surprise. Four years of fishing for lake sturgeon from 1999 through 2002 by Alpena FRO during the months of April - September, in an area know to be the "home area" resulted in the capture of only 86 fish. Because of the life history and general biology of the fish only half of those would be females and of those only a small percentage had reached an age of sexual maturity. Compounding this further is the fact that females generally spawn at a period of every 2 to 7 years. So for the entire 32 mile stretch of the Detroit River there are probably very few spawning lake sturgeon in any given year and the odds of finding reefs that cover an area measuring 8,000 square meters are low.

Fish use of the constructed reef by other species was much more promising. During the first two weeks of sampling spawning ready male and female walleye were captured in gillnets and walleye eggs were collected from the egg mats. During the peak of walleye spawning over 250 eggs per mat were collected. As water temperatures increase over the period of the study a total of 17 species were captured and of those eight species of fish spawned or were captured in a sexually mature condition (ripe and running with either eggs or sperm) on or near the reefs.

The findings in 2005 were not able to fully address our initial goal of providing substrate for lake sturgeon. Further research of the site needs to be preformed and is being planned for the next few years. Since this project began back in 2003 three other artificial reefs have been constructed in the Detroit River. Working with our partners from the USGS GLSC, Michigan Department of Natural Resources, Ontario Ministry of Natural Resources, Department of Fisheries and Oceans Canada, municipal governments in Michigan and Ontario, along with corporate sponsors we plan to assess these new locations over the next three years and our hope is that during that same time period that lake sturgeon will locate and begin using the Belle Isle reefs.

Resources from both the Service and USGS were pooled to efficiently monitor the Belle Isle reefs from 2003 - 2005. Our goal is to continue to collaborate with our partners on this site along with new locations found in the Detroit and St. Clair rivers. Major contributors for this project include; Michigan Sea Grant, USEPA, US Army Corps of Engineers, Great Lakes Fishery Trust, Michigan DNR, US FWS (Science Support Program), City of Detroit, and DTE Energy. If successful this project will not only be the first artificial spawning reef constructed in the Great Lakes specifically for lake sturgeon, but will also serve as a demonstration of a partnership effort working for the common good of a listed species.

This effort provided a unique opportunity to create new partnerships with both governmental and non-governmental agencies to achieve common Great Lakes management objectives. Maintaining these collaborative relationships allows for the most efficient use of limited human and fiscal resources. This project is consistent with the Partnerships and Accountability, Aquatic

Species Conservation and Management, and Leadership in Science and Technology focus areas of the Fisheries Program's Vision for the Future.

James Boase

Michigan Islands National Wildlife Refuge Survey

During the month of June Fishery Biologists Scott Koproski, Adam Kowalski, Susan Wells, and Anjanette Bowen began field work for a Michigan Islands National Wildlife Refuge fishery survey. Biologist Koproski received funding through the Service's Challenge Grant Program to obtain fishery data on islands located in Thunder Bay, Lake Huron. This is a cooperative project between the Michigan DNR and the Service.

Two of four islands that fishery data were collected from are components of the Michigan Islands NWR. However, all four islands are important to coastal fish species and recreational fishing opportunities in the Thunder Bay area. These islands provide important feeding, spawning, and nursery habitat to a variety of fish species, but the status of these populations is unknown. The goal of this study is to obtain baseline data to monitor any trends in these populations and see what impacts disturbances like habitat alteration, exotic species, and cormorant predation might have on these populations in the future.

Alpena FRO staff attempted to set two to four 1,000 ft variable mesh gill net gangs on each of the four islands. We set a total of 6,000 ft of gill net, but our catch rates were quite low due to our nets filling up with algae. The algae clung to the gill net twine and collapsed the nets. The presence of algae has been a problem in the past, but the problem was more severe this year. As a result, the gill nets did not provide a representative sample of the fish species utilizing the islands. The project was postponed until late August in the hope that algae will be less abundant at that time of year.

This project is another example of Alpena FRO's commitment to the following Fishery Vision Priorities: Aquatic Species Conservation and Management, Public Use, and Partnerships and Accountability.

Scott Koproski

Aquatic Habitat Conservation and Management



Thunder Bay Project Implementation Working Committee Meeting

Fishery Biologist Aaron Woldt participated in a Working Committee meeting for the Thunder Bay Power Company Thunder Bay River Project Implementation. The Working Committee was created to assist Thunder Bay Power (TBP) in meeting the requirements of its Federal Energy Regulatory Commission (FERC) license. Biologist Woldt is the Service representative on the Working Committee.

The primary focus of the June 9, 2005 meeting was license article 409 pertaining to downstream fish passage and protection, although other matters were discussed. In 2003 Great Lakes Environmental Center (GLEC), a contractor retained by TBP, submitted a preliminary fish passage and protection study plan to the Working Committee for evaluation. A final plan is due to FERC on July 1, 2005. Due to concerns with the number of fish diversion techniques to be tested, time period/seasonality of the planned evaluation, and overall cost of the original field based study, USWFS and MDNR suggested that a “desktop” model/evaluation that would make use of the wealth of existing entrainment data collected at the Thunder Bay projects might be more appropriate and cost effective. As a result, GLEC was asked to draft and submit to FERC a new study plan to reflect this change by the July 1, 2005 deadline. The new plan will evaluate more than one downstream fish diversion technique, be applied over a longer time frame including peak migration periods, and help preserve the solvency of the settlement escrow account.

TBP also updated the Working Committee on the status of the sale of the Thunder Bay River Projects to North American Hydro (NAH). The sale should be complete in less than a month, and only a few small issues are pending. NAH is expected to provide a chairman for the Working Committee in the near future. That chairman may be Andy Blystra, the current chairman, if his services are retained by contract with NAH.

The meeting was attended by member representatives from Michigan DNR, TBP, and the Service. In addition representatives from the Hubbard Lake Sportsmen and Improvement Association, Montmorency Conservation District, Thunder Bay Audubon Society, and Northeast Michigan Council of Governments also participated.

Service involvement in the TBP Working Committee provides opportunities to minimize or mitigate the impacts of habitat alteration on fish and other aquatic species caused by hydropower facilities in the Thunder Bay River system. This outcome is consistent with the Aquatic Habitat Conservation and Management priority of the Fisheries Program Vision for the Future.

Aaron Woldt

Meeting of the Road Crossings

On June 14, Biologists Wells and Enterline met with representatives from Huron Pines RC&D and the Otsego County Road Commission to discuss two pending road crossing projects, on Crapo Creek and Gillis Creek. The Gillis Creek project is funded with 2004 Fish Passage money and consist of an undersized perched culvert that will be replaced this fall with a bottomless structure. Gillis Creek is a headwater tributary to the Black River which is a state designated Blue Ribbon Trout Stream. Replacement of the current structure will restore 2 miles of brook trout passage to spawning and nursery areas.

The Crapo Creek project, funded with 2005 Fish Habitat Restoration money, is a bridge crossing on a tributary to the AuSable River which another state designated Blue Ribbon Trout Stream. The bridge is low and narrow and was installed years ago as a temporary crossing. Because the crossing was improperly designed, large amounts of sediment enter the stream at this point and flow directly into the AuSable River. The gravel road washes out annually and many partners

have identified it as a problem site. Project planning has begun for this site with expected completion in 2006.

This is an example of collaboration between state and federal government agencies, watershed groups, and non profit organizations to enhance aquatic habitat which will benefit fish and wildlife resources. These projects will enhance fish passage and fish habitat for brook trout into reaches of the Black River Watershed and AuSable River Watershed. This project addresses the Service's Fisheries Program Vision for the Future priority of Aquatic Habitat Conservation and Management.

Susan Wells

Partnerships and Accountability



CWT's Removed from MDNR Lake Trout

During the last week of June 2005, Fishery Biologists Adam Kowalski and Scott Koproski extracted and read coded-wire-tags (CWT's) from lake trout for Michigan DNR. CWT's are microscopic metal tags placed in the snouts of juvenile lake trout at the hatchery. Hatchery personnel then remove the fish's adipose fin so that tagged lake trout can be identified by anglers and researchers. Lake trout heads were

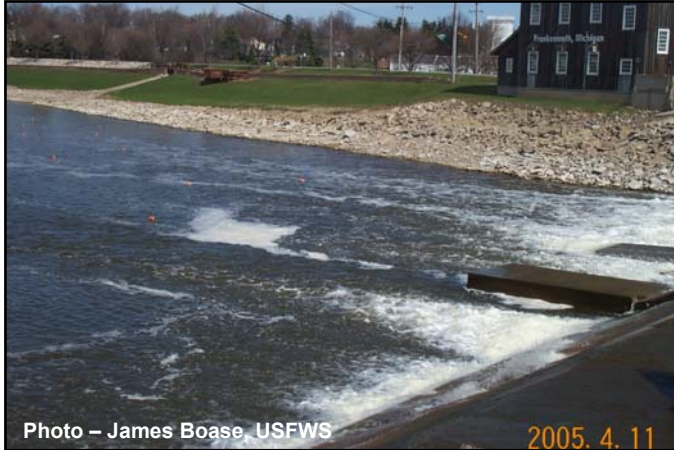
collected during the Marquette Fishery Research Station's 2004 Lake Superior lake trout surveys.

CWT's are extracted by cutting lake trout snouts into smaller and smaller pieces until the tag can be seen and removed. A metal detector is used to help the extractor find tags. CWT's are read under a microscope, and each tag's unique number is recorded. The tag number, when compared to stocking records, yields information such as stocking location, stocking date, fish age, fish strain, and hatchery of origin.

In total, Kowalski removed and read 98 tags from 102 lake trout heads. Not all adipose clipped lake trout contain CWT's, because some lake trout shed their tag and some are erroneously fin clipped.

Information from these tagged fish will be used by MDNR to monitor Lake Superior lake trout populations and to update annual catch-at-age models used to set safe harvest limits in 1836 Treaty waters. These outcomes are consistent with The Aquatic Species Conservation and Management and Partnerships and Accountability priorities of the services Fisheries Program Vision for the Future.

Adam Kowalski



Lake Sturgeon Research Presented to Saginaw Bay Watershed Initiative Network

Fishery Biologist James Boase traveled to Bay City, Michigan on June 3rd to present the preliminary results from the first year of research on the Saginaw River Watershed. The annual meeting sponsored by WIN provides an opportunity for recipients of funding to present their research to the board members as well as interested citizens and

business members from the local community. Approximately 50 people were in attendance at the meeting.

Information was presented using Power Point and lasted for 45 minutes. Preliminary findings from the spring sampling indicated that lake sturgeon were present at two locations during the spring sampling period. One fish was located on the Tittabawassee River below DOW Dam while a second individual lake sturgeon was sighted below the Chesaning Dam on the Shiawassee River. Egg mats placed in the Tittabawassee River below DOW Dam failed to detect the presence of eggs, we therefore concluded that the fish sighted below the dam was just one individual. No egg mats were placed in the Shiawassee River because preliminary examination of that portion of the watershed in the fall of 2004 suggested that the available habitat would not be suitable for spawning, consequently we decided to focus our efforts on the Cass River. Research in 2006 will focus on the Cass, Tittabawassee, and Shiawassee rivers. Our primary goal is to either collect genetic information from the lake sturgeon that are occasionally migrating up the watershed to spawn and to compare it with the genetic information from other known populations around the Great Lakes. Obtaining genetic information about the Saginaw River lake sturgeon is essential for future management decisions and will be key in determining the next step.

Following the presentation questions were answered for approximately 20 minutes. Questions focused on how efforts to rehabilitation lake sturgeon integrates with the Fish Community Objectives for Lake Huron, how the research would benefit other game species, and what other lake sturgeon habitat would be available if the DOW Dam was removed. Specific questions were addressed about what steps will be necessary to rehabilitate lake sturgeon in the watershed following the results of the current research. The forum was an excellent opportunity for Boase to explain how Alpena FRO is working closely with biologists from other State and Federal agencies along with non-governmental organizations to better understand and enhance sturgeon populations throughout the Great Lakes.

This presentation provided an excellent opportunity to explain to the public the Service's mission and its effort to restore native fish and control exotic species. Specifically, the presentation focused on efforts to identify the remaining lake sturgeon spawning habitat associated with tributaries connected to Lake Huron. The benefits of native species restoration, and the detriments of exotic species were clearly defined and explained. The presentation was also an

excellent outreach opportunity. This project is consistent with the Partnerships and Accountability, Aquatic Species Conservation and Management, and Leadership in Science and Technology focus areas of the Fisheries Program's Vision for the Future.

James Boase

Public Use



Service Presents Results of Lake Trout Tagging Studies at IAGLR

Fishery Biologist Aaron Woldt of

the Alpena FRO attended the International Association for Great Lakes Research (IAGLR) Conference on Great Lakes Research on May 26 in Ann Arbor, MI. Woldt gave two presentations summarizing results from the Lake Huron Enhanced Quality at Release Study and the Lake Huron Lake Trout Movement Study. A special symposium entitled "Use and Misuse of Tagging Data" was held at this conference to explore tagging issues in the Great Lakes basin.

The Enhanced Quality Study compared coded-wire-tag (CWT) returns of standard and enhanced quality Lewis Lake strain lake trout yearlings reared at Jordan River National Fish Hatchery (NFH). For this study, paired plantings of standard quality (approx. 20 per pound) and enhanced quality (approx. 10 per pound) CWT lake trout were planted at each of four sites—Adams Point, Middle Island, Sturgeon Point, and Point Au Barques—in both 1996 (1995 year class) and 1998 (1997 year class). For each year class, approximately 30,000 standard quality and 30,000 enhanced quality lake trout yearlings were planted at each stocking site. Since 1996, these CWT lake trout have been captured in survey, commercial (gill-net and trap-net), and recreational gears. Woldt showed two types of analyses: 1) an effort independent analysis using Chi Square methods to analyze returns from all sources and 2) an effort dependent analysis using the Wilcoxon Test for Matched Pairs to analyze only survey caught fish. Both analyses used return data through 2004. Overall, the results of the Lake Huron study using either analysis technique showed that the enhanced quality fish survived significantly better than the standard quality fish, although significant differences in survival were not detected for each site and each year class using the Wilcoxon Test for Matched Pairs. In general, enhanced quality fish survived 62% better than the standard quality fish in Lake Huron. Woldt compared results of the Lake Huron Study to those of the Lake Michigan Study at the Clay Banks site which showed no differences in survival when examining only survey caught fish.

The Lake Trout Movement Study compared CWT returns of lake trout yearlings stocked at 8 discrete movement sites across the lake. For this study, four year classes of lake trout (1991, 1993, 1995, 1997) were planted at Adams Point in MH-1, Middle Island in MH-2, Sturgeon Point in MH-3, and Point Au Barques in MH-4. Four additional year classes (2001, 2002, 2003, 2004) were subsequently stocked at each of the four original sites and a new site off Point Clark in Canadian waters. CWT lake trout have been stocked annually in the Drummond Island Refuge in MH-1 since 1985 and in the mid-lake Six Fathom Bank Refuge since from 1985 to 1998. Two year classes (1999, 2000) of CWT lake trout were also planted on Yankee Reef (mid-lake). Over the course of the study, there have been 1,276 returns of Adams Point fish, 1,076 returns of

Middle Island fish, 1,088 returns of Sturgeon Point fish, 1,275 returns of Point Au Barques fish, 5,049 returns of Drummond Island fish, 5,443 returns of Six Fathom Bank fish, 68 returns of Yankee Reef fish, and 0 returns of Point Clark fish in agency surveys, commercial fishing gear, and the recreational fisheries (all gears combined). Woldt adjusted returns in survey gill nets and large mesh commercial gill nets for effort and estimated dispersal radii with standard errors and directions for the 4 nearshore stocking sites. Analysis of CWT returns in the refuge and mid-lake sites is incomplete at this time. On average, lake trout ranged 21.8 ± 1.4 mi from Adams Point, 27.6 ± 1.8 mi from Middle Island, 32.3 ± 2.2 mi from Sturgeon Point, and 24.0 ± 2.9 mi from Point Au Barques. In general lake trout moved large distances at early ages with some fish moving 100 miles or more by age 2 and generally moved in an onshore direction. Only fish from Adams Point (increasing) and Point Au Barques (decreasing) showed statistically significant trends in distance moved by fish age. Ongoing analyses includes fitting returns per effort at each site using an exponential sigmoid model to estimate lake trout home range, completing effort adjustments for the refuge and mid-lake sites, comparing movement patterns by strain for the Drummond Island and Six Fathom Bank sites, and a deeper analysis of differential movement by year class at each site.

Manuscripts summarizing the results of the Lake Huron Enhanced Quality at Release Study and the Lake Huron Lake Trout Movement study will be prepared later this summer when all analyses are complete.

Evaluating the survival and movement tendencies of hatchery produced lake trout allows managers to better support lake trout restoration efforts by providing the best quality hatchery product possible and better manage harvest of lake trout based on movement among management units. These outcomes are consistent with the Service's goal of building and maintaining self-sustaining populations of native fish species under the Aquatic Species Conservation and Management priority of the Fisheries Program Vision for the Future.

Aaron Woldt

Workforce Management



Photo – Alpena FRO, USFWS

Boating Preparation

On June 13, 2005 Fishery Biologists Adam Kowalski, Aaron Woldt, and Scott Koproski spent the afternoon providing Alpena FRO staff with a refresher on boat safety and maintenance. Woldt, Kowalski, and Koproski carefully went through every boat explaining vehicle/trailer hook-up and trailer towing, safety gear on each vessel and where it is located, boat launching procedures, explanation of the braking system (if any) on each trailer, special attention that a particular vessel

may need while operating it, and general maintenance before and after operating a vessel (e.g. checking/filling engine oil, checking trailer wheel bearings).

This was the 2nd annual pre-field season boat orientation meeting conducted at the Alpena FRO, and it seemed to be very helpful for those individuals that have not operated the station vessels since last field season. This will be an annual session for the Alpena FRO staff.

This boat safety meeting was developed to provide employees with opportunities to maintain competencies in proper boating procedures and to ensure that all employees are properly trained to effectively and safely perform any boating duties. This is consistent with the Workforce Management Objective in the Fisheries Program Vision for the Future.

Adam Kowalski



CPR and Fire Extinguisher Safety Training

Alpena FRO staff received annual CPR and AED lifesaving training from Red Cross certified Bob Petersen of the Jordan River National Fish Hatchery on June 28. Scene assessment and safe action are key to providing care in the event of an

emergency. Thanks to Bob for the many years he has provided CPR and First Aid training for our station.

Staff also received annual fire extinguisher training on June 29 from Alpena Township firefighter Jim Saylor with Great Lakes Fire and Safety Equipment. Employees learned what should be done in the event of a fire and how to attack a small manageable blaze. Information was provided about the different types of extinguishers and types of fires they are effective against. Each staff member took part in extinguishing demo fires using a variety of different extinguishers.

Life saving and fire fighting materials are available in all station work areas, vehicles, and vessels. Training will allow Alpena FRO staff to safely perform their duties and allow them to effectively respond in an emergency situation, which is particularly important when working on boats and in remote locations. This activity is consistent with the Fishery Program's Vision for the Future for Workforce Management.

Anjanette Bowen